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Art. XX.—*The Correlation of Size of Head and Intelligence as Estimated from the Cubic Capacity of Brain of 355 Melbourne Criminals.*

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The present investigation deals with head measurements of 355 male adult criminals incarcerated in Pentridge and Melbourne Gaols, for various offences against the law. For permission to carry out the research we have to tender our thanks to Mr. Callaway, the Acting Inspector of Penal Establishments, and to Messrs. Paterson and Edgar, the respective Governors of Melbourne and Pentridge Gaols. The objects of the research are threefold. First, to determine the amount of brain in cubic centimetres possessed by a class of the community which is presumably of an inferior position in the human scale of society. Second, by comparing the results obtained with those of admittedly superior education and social status to ascertain what, if any, correlation exists between size of head and mentality. Third and last, to discover, if possible, what light such an investigation throws on our present social and political methods of dealing with habitual offenders against the State.

In view of the marked importance of the second of these objects and the divergent opinion which has been expressed thereon, it will be advisable, at the outset, to ascertain what are the matured opinions of other competent investigators on the hotly-debated question as to the correlation between size of head and intelligence. The problem has been attacked from both a biological and a biometrical standpoint, and with somewhat conflicting results.

Dr. R. J. Gladstone (1), writing in 1903, states there is a "distinct correlation between large size of head and a high degree of mental ability, this correlation being both absolute and relative to the general size and weight of the body."

In 1907 the same observer (2) adds: "If we take the average measurements, however, of a large number of individuals belonging to a particular class, it will be found that there is a small though definite correlation between large size of head and intelligence, and that the large size of head is not only actual, but is proportional to the stature and weight of the individuals. . . . We may say, therefore, that these figures indicate that the more intellectual are not only finer specimens of humanity, but that they have both actually and proportionally to the size of their bodies larger heads than the less intellectual."

Bayerthal (3), working on the circumferential head measurements of school children, finds that large heads are often associated with inferior talents, and surprising discrepancies can often be noted; moderate talent may be associated almost equally with large and small head size.

Pearson (4), in 1906, commenced an investigation "On the relationship of intelligence to size and shape of the head, and to other physical and mental characters," with the following conclusions, derived from former papers:—

a. There is a slight correlation between size of head and general intelligence.

b. This correlation is not sensibly increased by allowing for the size of the body relative to the size of head.

c. The correlation is so small that it would be absolutely idle to endeavour to predict the intellectual ability of an individual from his or her head measurement. On the other hand, if a population were divided into those with large and those with small heads, we should expect to find a very slight balance of average intelligence in the former group."

In the paper from which the foregoing extracts are taken, Pearson also adds that as the measurements therein contained are based on a far larger number than any hitherto published, they are, he thinks, convincing as to the small part played by head size in determining the grade of intelligence.

He also states that it is idle "to assert that head measurements can be of any service in the prediction," and that he wants "to convince the anatomist and the old school anthropologist that head measurements are not of real service as intelligence tests."

Eyerich and Loewenfeld (5) have recently made a very thorough investigation of the relationships of intelligence to size of head, employing as material 935 soldiers, 300 one year enlistments (einjährige), who in Germany are usually derived from the better classes, and 312 boys between 9 and 15 years of age. They reached the following conclusions:—

From the measurements of heads and brains no very extensive conclusions as to mental activity can be drawn.

High intelligence is most frequently found in cases with average head measurements.

Exceptionally large head measurements, as also exceptionally high brain weights, occasionally point to great intelligence, and in the same way exceptionally small head measurements may indicate an especially inferior intellect.

The greatest head measurements and the heaviest brain weights are found fairly uniformly in both highly intelligent and less intelligent persons.

The very smallest head measurements, apart from family or other peculiarities, occur in the mentally less functionally capable.

Pearl (6), in a paper not available to us in Melbourne, applies to the above statistical series of Eyerich and Löwenfeld, Pearson's correlation methods, and deduces therefrom that a perceptible but very slight positive correlation between head size (circumference) and intelligence exists, but warns us from drawing further conclusions or generalisations therefrom.

Buschan (7) supports the view that there is some correlation between great skull capacity or great brain weight and marked mental ability. In support of this he points out, amongst other things, that of the highest professional classes 57 per cent. will have a brain weight of over 1400 gr., and of the lowest classes only some 26 per cent. will possess a corresponding brain weight.

In children, Lee, Lewenz and Pearson (8) conclude "that there is no marked correlation between intelligence and the size and shape of the head."

Lee (9) in the course of an important paper, states "that there is no marked correlation between skull capacity and intellectual power in the case of either sex alone." And, again, "it would not appear from the above results that skull capacity at any rate is a character closely correlated with intellectual ability in the individual, and therefore it is quite conceivably not correlated with racial ability."

In this same paper Miss Lee commits herself to the following statement:—"Personally I am inclined to hold with Professor Pearson that the complexity of the convolutions of the brain, and variety of its commissures, rather than its actual size, are the characters we might expect to differentiate race from race, and sex from sex, and to have developed with man's civilisation."

In 1902 Pearson (10), dealing with "upwards of a thousand Cambridge undergraduates," states that "so far as the Cambridge results go, there is no marked correlation between ability and the

shape or size of the head," and concludes finally that "very brilliant men may possibly have a very slightly larger head than their fellows, but taking the general population there is really a very insignificant association between size of head and ability. For practical purposes it seems impossible, either in the case of exceptionally able men or in the bulk of the population, to pass any judgment from size of head to ability or *vice versa*."

In this same paper Pearson also states "we have found . . . a very definite statement made that able men have large heads. We cannot find, however, that there are really reliable statistics, adequately treated, which in any way prove this general statement. It is perfectly true that the professional classes in this country have a rather larger head than the hand-working classes, and the former are rather more intellectual. . . . Dr. W. R. Macdonell has recently shown that the head of the Cambridge undergraduate is larger than the head of the criminal population, but any deduction from a mixture of these two classes (that ability is correlated with size of head) would be wholly misleading."

Without multiplying instances further, it is clear from the foregoing extracts that there is much divergence of opinion on the interesting point as to whether there is any relationship between size of head and intelligence; and, speaking broadly, the disputants to the problem divide themselves into two camps, the biometricians with no medical training, and the biologists with a corresponding lack of mathematical skill. The former see little or no correlation between the two things, size of head and intelligence, whilst the latter seek to establish some slight connection between the two.

For ourselves we approach the problem from the standpoint of the trained medical man, with a knowledge of the human neurological factor, and just sufficient mathematics to appreciate Pearson's dogma that "statistical enquiry is not a field for guess-work and elementary arithmetic; there is a mathematical science of statistics which must be learnt, and papers dealing numerically with anthropometric and craniometric data, which do not now apply this theory, are simply outside the field of science."

The 355 criminals with which this investigation deals were, as already stated, confined in Pentridge and Melbourne Gaols. They are all Caucasians and adult males. The observations which we have recorded upon them fall into two categories, which may be best described as personal and craniometrical.

Of the personal observations we have recorded the age and the nature of the crime. We were, for obvious scientific reasons, most anxious to obtain also the height and bodily weight, but this was, as it turned out, quite impossible.

As regards the age, we rejected all juveniles, and thus deleted some 40 measurements. Those which we have retained are, therefore, all adults, and the ages run from 20 to 72, with a true mean of 37.90.

Concerning the nature of the crimes, our observational data comprise such crimes as murder, manslaughter, wounding and assault, sexual offences, larceny, embezzlement, forgery, house and shop breaking, cattle stealing, inebriety, wife desertion, obscene language, debt, receiving, false pretences, gambling, vagrancy, maintenance, suspected person, bigamy, impersonation and arson.

As the numbers herein dealt with are very unequally distributed amongst the foregoing crimes, we have thought it desirable to classify them into groups for convenience of working, and we thus reduce the above many crimes to ten divisions, which, with the number of criminals in each, are as follow:—

1.	Murder and manslaughter	11
2.	Wounding and assault	15
3.	Sexual offences	56
4.	Larceny	144
5.	Embezzlement	5
6.	Forgery	14
7.	House and shopbreaking	26
8.	Cattle stealing	6
9.	Inebriety	26
10.	Miscellaneous	52
	Total	355

Of the craniometric data we have recorded the maximum length of the head, the maximum breadth, the auriculo-bregmatic height, the maximum circumference, and the transverse arc. As all these measurements were taken in accordance with the instructions issued by the British Association Committee of Anthropometric Investigation in the British Isles, they require no further comment here.

From the information furnished by the first three measurements we have worked out the estimated cubic capacity of brain of these 355 criminals, as also the cephalic index, but we have made no use whatsoever of the circumferential measurements. They are simply recorded and published for the information and use of any other investigators who may care to avail themselves of the data.

The details for the whole series under both the personal and craniometric heads are set forth in the table which accompanies this work.

Concerning the method by means of which the cubic capacity of brain has been estimated from the three diametral measurements, we

have employed Lee's formula No. 14 (9), which for males is as follows :—

$$C = \cdot 000337(L - 11)(B - 11)(H - 11) + 406 \cdot 01.$$

We have selected this particular formula for the estimation of the cubic capacity for three reasons—first, because Miss Lee herself would appear to regard this as the most uniformly accurate of the many methods adopted, and thinks that it gives a result to within 4 per cent. Second, because Miss Lee's opinion is supported by practical experience in this school, one of our fellow-workers, Dr. J. H. Anderson (11), having proved that the Lee formula No. 14 is all the author has claimed for it; and, third, because the data with which we shall compare our results have been compiled with the use of this formula.

The material employed by us for comparison with the criminals has been selected with the special object of establishing the correlation, if any, between the brains of the lower grades of society, and of those who by education and nature of occupation may presumably be regarded as occupying a higher place in the social scale. If between two such opposed classes there should prove to be no difference, or but little, in the true mean of the cubic capacity of brain, then we think we should have to look entirely to environment or heredity, for the solution of the problem of the distinction of the two classes.

Our comparative data belong to two groups—first, those where the methods adopted are in all respects precisely similar to those of the present work, and which, therefore, permits of a direct comparison between the several results; and second, those where the methods of working have been different, and which, consequently restricts us to an indirect comparison.

In the former group, where the methods of working are in all respects precisely the same as our own, and where Lee's formula No. 14 has been uniformly employed for the necessary calculations, we have included :—

1. Thirty-five anatomists.
2. Twenty-five members of the teaching staff of University College, London.
3. Two hundred and fifteen medical students of the Middlesex Hospital and King's College, London.
4. Four Melbourne students.
5. An unknown number of members of the British Association for the Advancement of Science.

The necessary figures for the anatomists, members and teaching staff of the University College, and for the British Association are all taken from "A first Study of the Correlation of the Human

Skull," by Alice Lee, with some assistance from Karl Pearson (9). It is important to note that all are males and that, as stated, the methods of working are precisely similar to those adopted by us for the criminals.

Of the 215 Middlesex and King's College students, the necessary data of length, breadth and height have been taken by us from Gladstone's 1906 work (2), and the cubic capacities worked out by ourselves with the same formula as before. For the results of the former we are not, therefore, responsible, but for the latter any errors are our own.

In our second group of comparative data, where, the methods of working having been different, only indirect comparisons can be instituted, we shall avail ourselves of the published work of Matiegka (12) and Costa Ferreira (20). To these reference will be made later.

The true mean of the cubic capacity of brain of the 355 criminals of the present work is 1437.76 cc. The range of variation extends from 1164 cc., which occurred in a male aged 65, to 1771 cc., which also occurred once in a male aged 33. Both the minimum and maximum figures recorded by us occurred in persons convicted for larceny; this, however, may be merely a coincidence due to the fact that the cases of larceny in the present series comprise a larger number than any of the other groups. Expressed differently, if the true mean of the cubic capacity of these criminals be regarded as being equal to 100, then the minimum and maximum ranges of variation would be indicated by the figures 80.9 and 123.

For the 35 anatomists, the figures as furnished by Lee and Pearson are for the true mean of the cubic capacity 1537. If the amount of brain cubic capacity of the 355 criminals be regarded as being equal to 100, then the relative proportion of brains possessed by the 35 anatomists is 106.8. The range of variation in the 35 anatomists extends from 1372, which occurs once in a German anatomist who was attending the Congress at which the heads were measured, to 1813, which occurs once in a Welshman. If the anatomical true mean be regarded as being 100, then the range of variation extends from 89.2 to 117.9.

In the case of the 25 members of the teaching staff of University College, London, the true mean of the cubic capacity, as given by Lee and Pearson, is 1511, with a range of variation from 1352 to 1633, or in relative numbers, as before, from 89 to 108.

For the males attending the British Association for the Advancement of Science the true mean of the cubic capacity is 1495. As the minimum and maximum figures are not furnished by Lee and Pearson, we are unable to quote the range of variation.

In the case of the four Melbourne students the true mean is 1469 cc., with a range of variation from 1259 to 1590, or in numbers relative to the true mean (100), from 85.7 to 108.2.

The 215 Middlesex and King's College students are given by Gladstone in three groups according as to whether they were medallists and prizemen, students of average intelligence or only students below average intelligence. The individual figures are not available, so we can only deal with Gladstone's material as a whole. We find the true mean, as estimated from his table of average measurement for his three classes, to be 1507.34, with a range of variation from 1451.18 in Class C, the students below average intelligence, to 1565.09 in the medallists of Class A. The range of relative variation is, therefore, from 96.2 to 103.8. The much more restricted range of variation in the Middlesex Hospital and King's College group is due to the fact that it is based upon averages of groups and not upon individuals, as in the cases of all our other groups where we have recorded the range of variation, and consequently we do not specially emphasise the figures.

We do not intend to institute any comparisons in the present work between the cubic capacity of males and females, but it will be of interest to study this relative range of variation in the case of the 30 women students of Bedford College, the original figures for which are again taken from Lee and Pearson. The true mean of the cubic capacity of brain is in these students 1390, with a range of variation from 1200 to 1647, or in numbers relative to the true mean (100), from 86.3 to 118.4.

If the several groups be now arranged in the order determined by the estimated amount of cubic capacity of brain with the minimum and maximum ranges of variation of each group stated in terms of the true mean (100) of that particular group, we obtain the following :—

	Minimum.	True Mean	Maximum.
1. 35 Anatomists - -	89.2 -	1537 cc. -	117.9
2. 25 University College -	89 -	1511 cc. -	108
3. 215 London Medical Students	96.2 -	1507 cc. -	103.8
4. British Association males -	— -	1495 cc. -	—
5. 4 Melbourne Students -	85.7 -	1469 cc. -	108.2
6. 355 Melbourne Criminals -	80.9 -	1438 cc. -	123

If the amount of cubic capacity of brain of the foregoing groups be worked out in relative numbers from the lowest class, the criminal, whose cubic capacity of brain shall be regarded as 100, we achieve the following results :—

1. 355 criminals - - - - - -	100.
2. 4 Melbourne Students - - - - -	102.1
3. British Association males - - - -	103.9
4. 215 London Medical Students - - -	104.7
5. 25 University College Teachers - - -	105.0
6. 35 Anatomists - - - - - -	106.8

The general order of these groups is fully supported by the work of Matiegka and Costa Ferreira, to which incidental reference has already been made, and whose work constitutes the line of indirect comparison now to be made. Their results have not been incorporated in the above direct comparisons, because we do not know how they achieved their results, and it necessarily follows that if these investigators employed another formula than that herein adopted, their results, in cubic centimetres, cannot obviously be compared directly with ours.

Matiegka (12) examined the brain weights of a considerable number of individuals drawn from different classes of life, and concludes therefrom that it is clear that high intelligence is causally associated with an increase in the brain weight. The undoubtedly many discrepancies he explains on the different degree of muscular development of different individuals. His figures, arranged in grammes as given by himself, and in relative numbers worked out by ourselves, are as follows :—

	Grammes.	Rel. No.
1. 14 Day Labourers of the Navvy Class	1410.0	100
2. 34 Workmen	1433.5	101.6
3. 14 Minor Officials, Overseers and Watchmen in whom a certain amount of intelligence was necessary	1435.7	101.8
4. 123 Tradespeople and Artisans	1449.6	102.8
5. 28 Minor Officers, Teachers, Business People, Musicians, etc.	1468.5	104.1
6. Students, Officers, Doctors, etc.	1500	106.3

Costa Ferreira (13) measured the cubic capacity of 557 skulls from two churchyards in Lisbon. They were the skulls of persons whose position in life was known exactly, and which thus permitted of their subdivision into social groups. The average cranial capacity was 1572.72. This capacity must not, however, be compared directly with ours, as it was almost certainly obtained by a different method, and as the work was done on the skull itself, the measurement is probably direct and not estimated. The order attained by Ferreira's groups may, however, be compared with our own results, and is as follows :—

	Cubic cm.	Rel. No.
1. 95 unknown occupation	1538.98	100.0
2. 12 House Proprietors	1563.02	101.5
3. 164 Daily Labourers	1570.04	102.0
4. 150 Workmen	1573.69	102.2
5. 52 Public Servants on the Pension List	1584.91	102.9
6. 11 Public Servants	1590.18	103.3
7. 49 Business Men	1598.58	103.8
8. 93 Members Learned Professions	1629.9	105.9

From the foregoing comparisons, both direct and indirect, it is clear that as regards classes the greater the intelligence demanded by the profession the greater the amount of the cubic capacity of brain possssed by that class; in other words, as regards classes in general, the evidence herein adduced distinctly points to a correlation between intelligence and size of head.

We have already stated that the 355 criminals of the present investigation have been divided by us into ten groups according to the nature of their crimes, and in view of the general conclusion contained in the last paragraph, we have thought it advisable to examine these ten classes, to see if that conclusion would be supported or not, by the various criminal groups themselves.

Of these ten groups the true means, probable errors, and standard deviations of the cubic capacities of brains, with the minimum and maximum figures in each group, are as follow:—

355 Criminals divided into 10 Groups according to the nature of the crime.

No.	Nature of Crime.	Minimum.	True Mean.	Standard Deviation.	Maximum.
6.	Cattle Stealing	1280	1377±24.31	88.28±17.20	1516
26.	Inebriety	1191	1423±17.20	129.80±12.14	1657
15.	Assault and Wounding	1268	1425±15.48	88.86±10.95	1595
144.	Larceny	1164	1432± 5.52	98.21± 3.90	1771
26.	House and Shopbreaking	1317	1435±10.82	81.66± 7.63	1610
56.	Sexual Offences	1213	1440± 9.09	100.89± 6.43	1668
11.	Murder and Manslaughter	1261	1456±22.98	113.02±16.25	1675
52.	Miscellaneous	1269	1458± 8.73	93.33± 6.17	1678
14.	Forgery	1267	1459±21.15	117.31±14.95	1701
5.	Embezzlement	1384	1475±31.43	103.94±22.18	1645

If now we express the relative amounts of brain capacity possessed by these several classes of criminals, and those other learned classes selected by us for comparison in terms of the lowest class of all, namely, the cattle stealers, whose cubic capacity of brain shall be assumed to be equal to 100, we obtain the following results, where are also shown the minimum and maximum ranges of variation in the class:—

		Minimum.	Capacity.	Maximum.
1.	6 Cattle Stealing	92.9	100.	110.
2.	26 Inebriety	83.6	103.3	116.4
3.	15 Assault and Wounding	88.0	103.4	111.9
4.	144 Larceny	81.2	103.9	123.6
5.	26 House and Shopbreaking	91.7	104.2	112.1
6.	56 Sexual Offences	84.2	104.5	115.8
7.	11 Murder and Manslaughter	86.6	105.7	115.0
8.	52 Miscellaneous crimes	87.0	105.8	115.8

		Minimum.	Capacity.	Maximum.
9.	14 Forgery - - - -	86.8 -	105.9 -	117.0
10.	4 Melbourne Students - -	85.7 -	106.6 -	108.2
11.	5 Embezzlement - - -	93.7 -	107.1 -	111.5
12.	British Association males -	-	108.5 -	—
13.	25 University College Teachers	89.0 -	109.7 -	108.0
14.	35 Anatomists - - -	89.2 -	111.6 -	117.9

The foregoing table seems to us to confirm the general results already attained. Of the criminal classes it is extremely significant that those convicted of skilled crimes like forgery and embezzlement head the list, separated from each other by four students. As the forgers and embezzlers are drawn from the business classes, where intelligence is required, it seems to us that the position occupied in the table by these two groups of criminals is exactly that which might have been expected. The forgers are followed, in our table, by the miscellaneous crimes, which in this instance also include certain crimes where some degree of intelligence would be demanded. Cattle stealing can hardly be termed an intelligent occupation, and it occupies the lowest place on the list. We thus see that the criminal classes occupy positions which seem to us to confirm the results we have already attained from our examination of the learned classes, and which all goes to prove that, as regards the classes, there is an appreciable correlation between size of head and intelligence.

Concerning the ages of the 355 criminals herein dealt with, we find the true mean to be 37.90 years of age. The true means, probable errors and standard deviation of the ages of the several groups into which we have divided them are as under :—

		True Mean of Age.	Standard Deviation.
1.	Cattle Stealing - -	30.83±1.41 -	4.68± .99
2.	Assault and Wounding -	31.8 ±1.52 -	8.77±1.08
3.	Miscellaneous Crimes -	34.1 ±1.14 -	12.20± .80
4.	House and Shopbreaking -	35.53±1.58 -	12.01±1.12
5.	Larceny - - -	37.30± .67 -	11.95± .47
6.	Sexual Offences - -	39.06±1.27 -	14.17± .90
7.	Forgery - - -	39.00±2.64 -	14.69±1.87
8.	Murder and Manslaughter -	43.19±2.76 -	13.56±1.95
9.	Embezzlement - -	46.40±4.60 -	15.03±3.20
10.	Inebriety - - -	49.43±1.73 -	13.11±1.22

Individually the youngest of these criminals is aged 20 years, and the oldest 72. This notwithstanding, the comparatively high true mean of the criminals as a whole, and in individual groups is somewhat surprising, and may possibly be accounted for by the fact that some of them are serving long sentences. It would, therefore, be unwise to make any sweeping deductions from these ages.

It is, however, somewhat significant that cattle stealing seems to be a crime committed by young persons of exceptionally poor mental ability; still more striking is the fact that embezzlement would appear to be a crime of middle life, when possibly various social causes have tempted the individual of good previous position in society to maintain that position at all hazards; and, lastly, chronic alcoholism would seem to be a disease of middle and old age. A comparison of the table of ages with that of cubic capacity of brain does not appear to show any correlation whatsoever between age and crime.

From the lengths and breadths of the heads of these criminals we have also worked out the breadth or cephalic index. It must be noted that the resulting indices are those for the heads including the soft parts, as we have not thought it worth while to perform the necessary calculations for obtaining from the surface anatomy figures those for the skull itself. We find the true man of the cephalic index of the 355 criminals to be 78.96 ± 0.36, and the standard deviation 3.63 ± 0.25. The group, as a group, is thus mesaticephalic, as were also the 3000 criminals examined by Macdonell (14) with an index of 78.538. Of the individual groups, all, with the exception of the forgers, are also mesaticephalic, and the forgers just come into the brachycephalic class with an index of 80.36 ± 1.64. The results are as follow :—

Table of the Cephalic Indices of 355 Criminals.

	True Mean.	Standard Deviation.
6 Cattle Stealing	$77.34 \pm .91$	$3.30 \pm .64$
15 Assault and Wounding	$78.07 \pm .61$	$3.50 \pm .43$
52 Miscellaneous Crimes	$78.25 \pm .33$	$3.61 \pm .23$
144 Larceny	$78.90 \pm .18$	$3.28 \pm .13$
11 Murder and Manslaughter	$79.00 \pm .77$	$3.78 \pm .54$
26 House and Shop-breaking	$79.30 \pm .40$	$3.09 \pm .28$
56 Sexual Offences	$79.37 \pm .34$	$3.83 \pm .24$
5 Embezzlement	79.40 ± 1.10	$3.92 \pm .73$
26 Inebriety	$79.57 \pm .78$	$5.93 \pm .55$
14 Forgery	80.36 ± 1.64	$3.57 \pm .45$

The standard deviations in the above table make it evident that, whilst the whole group is, as stated, and broadly speaking, mesaticephalic, yet many of the classes range from dolichocephaly to brachycephaly.

As with the age so with the cephalic index, there does not appear to be any correlation between the cephalic index and crime.

Having thus disposed of the questions of age and cephalic index, we may now revert to the major question, namely, the correlation between size of head and intelligence.

We have already shown, as fairly as we can, that on this point there is a marked divergence of opinion, and we now propose to examine the facts from both the medical and the biometric side with a view to determining how far the present research tends to harmonise the undoubtedly conflicting opinions on the subject. With this object in view we shall first submit the results of the present work and the selected objects of comparison in a table wherein are shown the true means of the estimated cubic capacities with their probable errors, the standard deviation of the same with their probable errors, as also the extreme minimum and maximum figures in every class where they are known to us.

Concerning this last, Udny Yule (15) has written, "The simplest possible measure of the dispersion of a series of values of a variable is the actual range, i.e., the difference between the greatest and least values observed. While this is frequently quoted, it is as a rule the worst of all possible measures for any serious purpose. There are seldom real upper and lower limits to the possible values of the variable, very large or very small values being only more or less infrequent; the range is, therefore, subject to meaningless fluctuations of considerable magnitude according as values of greater or less infrequency happen to have been actually observed."

In the table which follows, Yule's objection, the very proper one of the mathematician, is met by the inclusion of the standard deviation, and the individual range of variation is retained for reasons which appeal strongly to the medical man on medical grounds alone.

Table of true means, standard deviations, probable errors and individual range of variation of 355 criminals and other classes of comparison.

No.	Class.	Minimum.	True Mean.	Standard Deviation.	Maximum.
35	Anatomists	1372	1537 ± 9.86	86.40 ± 6.97	1813
34	Anatomists	1372	1529 ± 8.53	73.81 ± 6.04	1656
25	Teachers	1352	1511 ± 11.04	81.90 ± 7.81	1633
215	London Students	—	1507	—	—
	B. A. A. Sc.	—	1495	—	—
5	Embezzlement	1384	1475 ± 31.43	103.94 ± 22.18	1645
4	Melbourne Students	1259	1469 ± 42.69	126.59 ± 30.27	1590
14	Forgery	1267	1459 ± 21.15	117.31 ± 14.95	1701
52	Miscellaneous	1269	1458 ± 8.73	93.33 ± 6.17	1678
11	Murder and Manslaughter	1261	1456 ± 22.98	113.02 ± 16.25	1675
56	Sexual Offences	1213	1440 ± 9.09	100.89 ± 6.43	1668
26	House and Shop-breaking	1317	1435 ± 10.82	81.66 ± 7.63	1610

No.	Class.	Minimum.	True Mean.	Standard Deviation.	Maximum.
144	Larceny	1164	1432± 5.52	98.21± 3.90	1771
15	Assault and Wounding	1268	1425±15.48	88.86±10.95	1595
26	Inebriety	1291	1423±17.20	129.80±12.14	1657
6	Cattle-stealing	1280	1377±24.31	88.28±17.20	1516
355	Melbourne Criminals	1191	1437.76±10.47	99.74± 7.10	1771

We do not think that any unprejudiced person can study this table and deny that as regards classes there is an undoubted correlation between size of head and intelligence, or, put more accurately, between cubic capacity of brain, as estimated from three diametral head measurements, and intelligence. This statement is the more probable inasmuch as it is strongly supported by the work of Gladstone, Matiegka, and Costa Ferreira, to which reference has already been made, and whose work supports in every detail the general conclusion here drawn. In view of the fact that Venn and Galton, quoted by Haddon (16), have shown for 1000 Cambridge students that education prolonged into years of adolescence, as amongst students at a University, increases the size of the brain, we fail to see how the thesis can be contested. We are, of course, aware that many of the opponents of the view talk somewhat vaguely of quality of brain rather than quantity. It has, however, been proved by Flechsig that the short association fibres of the human cerebral cortex do not myelinate until such time after birth as education and the exercise of the intellect have stimulated different parts of the cerebal cortex to act in harmony. If there be no education at all, these fibres do not myelinate, and, consequently, such a brain could not, other things being equal, ever attain the same size as the brain in which such nerve fibres had myelinated.

Similarly with the statement previously quoted from Miss Lee that "personally I am inclined to hold with Professor Pearson that the complexity of the convolutions of the brain, and the variety of its commissures, rather than its actual size, are the characters we might expect to differentiate race from race and sex from sex, and to have developed with man's civilisation"; to us it would rather appear as though increased complexity of cerebral convolutions means an increased number of brain cells and of axones of cells, and consequently an increase in size of brain, and that the commissures cannot be more varied without a corresponding increase in the commissural axones, and a consequent corresponding increase in the size of the brain. This line of argument is supported by the well-known anthropological fact that man's civilisation has resulted from a steady increase in cubic capacity of brain from *Pithecanthropus erectus* with his 1000 cc. of brain through the men of the palaeolithic

ages with 1100-1200 cc., the modern day Australian aboriginal with 1200-1300 cc., to the learned classes of the 20th century with their 1500 cc. This is still further supported by Buschan's recent work (7), which investigated the question as to whether the skulls of to-day permit us to recognise an increase of intelligence as compared with those of past ages; with which object he examined a number of French and Rhenish skulls from neolithic to modern times, and found that in the neolithic skulls of France the largest percentage (30 per cent.) had a cubic capacity of from 1300 to 1400 cc. Of Parisian skulls of the 12th century 37 per cent. had a cubic capacity of from 1400 to 1500 cc., whilst modern Parisian crania had, on an average, a cubic capacity of from 1500 to 1600 cc. Buschan attains like results with his Rhenish skulls, as also for the ancient Egyptians, and in the later he actually finds a diminution of the cubic capacity coincident with the mental decline of that ancient and highly civilised people. It seems to us, therefore, on neurological and anthropological grounds that Miss Lee's opinion is in reality an argument in favour of correlation of size of head and intelligence, and not against it, as she seems to imagine.

It consequently follows that if the expression "quality of brain" means anything at all, it denotes an activity of nerve cells due to some subtle and as yet unmeasured and unmeasurable chemical or physical reaction. As thus defined we do not deny the possibility of "brain quality" entering into the problem, but there is as yet no proof of it. All the facts, as we know them, point to an association between size of brain and mentality, and *per contra* we know of no evidence capable of scientific investigation which points to quality of brain rather than quantity as forming the dominant factor in the mentality of the several classes of mankind.

From the evidence of the present work, supported by the facts of others, and confirmed by the great principles of neurology and anthropology, we are of opinion that there is an appreciable correlation between size of head and intelligence in the several social human classes.

What holds good for the class should also be true for the individual. But here the problem is so obscured by environment, heredity, disease, disposition, habits of laziness or industry, and many other more or less disturbing factors that we entirely concur in the opinion of the biometric school of thought as expressed by Miss Lee, when she says: "there is no marked correlation between skull capacity and intellectual power in the case of either sex alone." To argue, however, as she does, that because there is no marked correlation in the individual, there is "quite conceivably no correlation with racial ability" seems to us to be erroneous reasoning.

From our observation of the problem we reason from the class to the individual and not *vice versa* as does Miss Lee.

We do not think, however, that any medically trained man or physical anthropologist, knowing the possibility of error in the of the individual, would base any opinion on the intellectuality of that individual from the mere study of his head measurements; in all cases excessively large or small figures of estimated cubic capacity of brain should, on medical grounds alone, be regarded with suspicion. Extremely small ones begin to border on the confines of microcephalic idiocy, and the large ones quickly verge into, or are suggestive of, hydrocephalus. Thus, a hydrocephalic individual who lived to the age of 34 (a male), and whose head was measured by one of us (Berry), had an estimated capacity of 3860 cc. Conversely, a boy aged 14, who was measured by Professor Berry on behalf of a Melbourne oculist, had an estimated cubic capacity of but 1169 cc. This examination, combined with the opthalmological report, played an important part in the future of the patient, whose father was dissuaded by the oculist from entering his son for any of the learned professions.

Then, again, an examination of the figures quoted by us on page 241, shows that the range of variation is so great amongst the different members of the several classes as to more than warrant extreme caution in passing an opinion on the individual. Individually some of the criminals have a much greater cubic capacity of brain than have the true means of the learned classes. It is, however, extremely interesting to note that in one case we are, from our own knowledge, enabled to state that the criminal who heads the list amongst the inebriate group, is a graduate of Oxford, and a man of great and undoubted intellectuality who has attained his present unfortunate position as the result of alcohol and neglected opportunity. The same table shows, on the other hand, that there are some individuals amongst the criminal classes who possess so few brains it is a mere mockery to go on punishing them for crimes, the heinousness of which they have not the brains to realise.

Concerning, then, the three objects with which the present investigation has been primarily concerned, we conclude:—

1. That the inferior, that is the less well educated, classes of the community, have an appreciably less amount of cubic capacity of brain than have the more highly educated.

2. That amongst classes there is a distinctly measurable correlation between size of head and intelligence, but that, as Pearson expresses it, "it would be absolutely idle to endeavour to predict the intellectual ability of an individual from his or her head measurements."

3. That amongst the criminal classes there is an undoubted percentage sufficiently devoid of brains as to render their repeated punishments for acts of which they are hardly responsible as undesirable as it would appear to be inhumane.

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Measurements of 355 Criminals.

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
1	Embezzlement	63	189	154	126	545	345	81.5	1392
2	,,	50	194	142	135	560	382	73.2	1407
3	Misappropriation	36	185	150	131	540	352	81.1	1384
4	Embezzlement	23	190	159	139	573	369	83.7	1548
5	Misappropriation	60	205	158	140	579	369	77.1	1645
6	Forgery	21	186	142	134	550	372	76.3	1356
7	,,	26	192	158	130	560	358	82.3	1473
8	,,	45	194	150	138	565	360	77.3	1494
9	,,	45	193	157	135	563	370	81.3	1516
10	,,	63	179	146	135	570	356	81.6	1353
11	,,	25	189	144	130	540	343	76.2	1355
12	,,	41	185	141	124	533	350	76.2	1267
13	,,	49	195	149	127	545	340	76.4	1398
14	,,	40	186	150	140	560	362	80.6	1463
15	,,	46	199	164	143	571	369	82.4	1685
16	,,	69	189	165	126	541	324	87.3	1468
17	,,	21	187	160	135	552	376	85.6	1501
18	,,	31	197	163	147	606	380	82.7	1701
19	,,	24	185	148	135	530	340	80.0	1402
20	Wife Desertion	28	198	149	142	565	370	75.3	1545
21	Obscene Language	28	180	152	125	545	355	84.4	1321
22	Debt	33	188	145	126	550	350	77.1	1325
23	Obscene Language	24	189	154	130	557	365	81.5	1426
24	Receiving	30	190	144	125	547	347	75.8	1320
25	False Pretences	23	190	146	134	553	350	76.8	1407
26	Wife Desertion	26	200	145	137	558	360	72.5	1481
27	Gambling	44	198	155	134	565	363	78.3	1522
28	Debt	33	188	148	138	550	360	78.7	1443

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
29	False Pretences	25	199	155	138	576	372	77.9	1564
30	,,	42	197	146	140	565	365	74.1	1497
31	Debt	36	206	151	132	575	365	73.3	1528
32	Vagrancy	51	190	152	140	557	377	80.0	1503
33	False Pretences	20	189	131	131	520	342	69.3	1269
34	Debt	32	200	149	140	573	389	74.5	1539
35	Obscene Language	25	186	150	128	540	370	80.6	1365
36	Maintenance	46	189	148	128	550	360	78.3	1367
37	Obscene Language	23	198	156	137	570	380	78.8	1557
38	Maintenance	29	194	154	130	550	360	79.4	1455
39	Vagrancy	28	195	148	136	560	382	75.9	1467
40	Suspected Person	31	192	148	124	525	360	77.1	1358
41	Vagrancy	24	185	150	127	543	358	81.1	1351
42	Bigamy	31	202	153	134	563	372	75.7	1530
43	Vagrancy	35	195	162	134	572	362	83.1	1557
44	Train Wrecking	27	204	158	134	577	368	77.5	1582
45	Smuggling	57	200	147	140	575	365	73.5	1523
46	Vagrancy	23	197	148	134	549	375	75.1	1462
47	,,	47	185	148	129	545	352	80.0	1353
48	False Pretences	24	192	141	134	548	360	73.4	1381
49	Vagrancy	20	185	149	142	530	360	80.5	1466
50	Bigamy	29	195	150	129	545	345	76.9	1423
51	Impersonation	52	195	156	139	565	375	80.0	1556
52	Vagrancy	23	182	149	127	535	340	81.9	1328
53	Gold-buying	29	182	154	134	555	350	84.6	1419
54	,,	38	188	156	129	560	362	83.0	1426
55	,,	24	190	160	133	562	373	84.2	1502
56	Bigamy	68	200	149	134	570	360	74.5	1487
57	Receiving	26	195	148	132	538	348	75.9	1433
58	Loitering	35	195	154	144	560	380	79.0	1585
59	Trespassing	47	194	149	130	550	340	76.8	1418
60	False Pretences	41	192	160	134	560	366	83.3	1523
61	Receiving	23	195	160	136	572	375	82.1	1560
62	Bigamy	31	191	156	133	554	354	81.7	1479
63	Receiving	66	187	156	130	555	354	83.4	1429
64	Illegally on Premises	23	200	150	130	565	359	75.0	1459
65	Suspected Person	57	200	154	136	578	360	77.0	1544
66	Vagrancy	43	195	148	126	565	335	75.9	1382
67	Receiving	27	188	134	130	568	357	71.3	1279
68	,,	27	199	162	144	561	374	81.4	1678
69	Vagrancy	29	195	161	136	574	360	82.6	1568
70	Arson	63	184	150	130	533	352	81.5	1370
71	,,	27	195	148	141	562	348	75.9	1510
72	Manslaughter	27	182	143	130	547	350	78.6	1311
73	Murder	50	197	157	131	570	370	79.7	1504
74	,,	30	192	151	134	568	362	78.6	1456
75	,,	32	190	152	132	555	330	80.0	1435
76	,,	30	193	146	136	550	340	75.6	1441

Serial Number.	Nature of Crime.	Age.	Length.	Breadth	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
77	Murder	46	187	142	133	570	331	75.9	1353
78	,,	47	185	139	125	528	345	75.1	1261
79	,,	61	194	152	136	545	360	78.4	1492
80	,,	33	195	156	142	572	372	80.0	1583
81	Manslaughter	52	193	161	149	569	370	83.4	1675
82	Murder	69	195	164	127	560	360	84.1	1506
83	Assault	27	205	151	136	570	370	73.6	1558
84	Murderous Assault	22	195	144	134	550	350	73.8	1420
85	Wounding	33	198	146	127	550	340	73.7	1392
86	Assault	30	190	156	147	555	355	82.1	1595
87	,,	26	187	152	132	550	375	81.3	1417
88	,,	28	188	152	131	544	344	80.9	1415
89	,,	47	178	149	122	520	320	83.7	1268
90	,,	29	194	155	131	558	358	79.9	1471
91	Wounding	25	184	145	131	535	335	78.8	1343
92	,,	25	190	139	130	535	342	73.2	1324
93	,,	39	189	149	135	560	362	78.8	1432
94	Attempted Murder	53	200	150	135	561	352	75.0	1503
95	Assault	30	180	149	130	533	334	82.8	1318
96	Criminal Assault	40	190	150	130	530	340	78.9	1403
97	,, ,,	23	198	148	140	563	354	74.7	1519
98	Sexual Offence	22	197	141	125	550	340	71.6	1334
99	,, ,,	22	187	143	131	545	356	76.5	1345
100	,, ,,	52	198	155	127	554	354	78.3	1458
101	,, ,,	29	182	139	131	520	345	76.4	1291
102	,, ,,	21	184	142	133	557	355	77.2	1337
103	,, ,,	48	185	151	135	538	372	81.6	1423
104	,, ,,	57	193	152	137	565	365	78.8	1495
105	,, ,,	21	192	159	132	560	355	82.8	1498
106	,, ,,	39	193	150	120	540	340	77.7	1335
107	,, ,,	60	201	157	132	568	362	78.1	1537
108	,, ,,	23	200	158	140	580	389	79.0	1613
109	,, ,,	34	191	152	133	550	350	79.6	1449
110	,, ,,	21	189	142	131	530	342	75.1	1348
111	,, ,,	42	190	149	133	542	370	78.4	1421
112	,, ,,	26	180	148	127	548	340	82.2	1311
113	,, ,,	33	190	136	134	534	352	71.6	1333
114	,, ,,	38	194	151	127	551	326	77.8	1407
115	,, ,,	58	190	148	140	550	360	77.9	1472
116	,, ,,	32	199	156	129	550	356	78.4	1490
117	,, ,,	35	197	154	137	558	358	78.2	1535
118	,, ,,	29	201	150	134	567	360	74.6	1500
119	,, ,,	54	185	138	129	530	330	74.6	1284
120	,, ,,	56	195	150	140	545	350	76.9	1517
121	,, ,,	45	185	154	132	545	340	83.2	1420
122	,, ,,	52	200	160	144	570	372	80.0	1668
123	,, ,,	61	194	148	130	567	360	76.3	1411
124	,, ,,	32	205	154	135	578	370	75.1	1565

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
125	Sexual Offence	38	190	160	142	549	381	84.2	1583
126	,, ,,	37	189	152	141	571	346	80.4	1505
127	,, ,,	70	195	160	129	562	361	82.1	1496
128	,, ,,	66	179	162	135	542	364	90.5	1466
129	,, ,,	32	196	154	127	539	356	78.6	1440
130	,, ,,	31	185	162	131	578	360	87.6	1468
131	,, ,,	28	186	156	127	543	340	83.9	1397
132	,, ,,	38	182	149	127	530	335	81.9	1328
133	,, ,,	32	188	149	142	548	345	79.3	1484
134	,, ,,	53	191	150	130	553	370	78.5	1409
135	,, ,,	34	197	154	140	570	364	78.2	1562
136	,, ,,	44	185	144	130	530	348	77.8	1334
137	,, ,,	46	202	165	136	587	345	81.7	1645
138	,, ,,	25	194	154	150	557	375	79.4	1631
139	,, ,,	26	184	146	130	528	350	79.3	1342
140	,, ,,	34	192	148	127	550	330	77.1	1375
141	,, ,,	55	192	148	130	540	350	77.1	1408
142	,, ,,	33	179	152	135	523	356	84.9	1395
143	,, ,,	21	196	154	134	551	361	78.6	1501
144	,, ,,	21	192	160	130	560	361	83.3	1487
145	,, ,,	35	192	150	128	549	352	78.1	1397
146	,, ,,	39	189	151	131	545	360	79.9	1407
147	,, ,,	30	174	150	120	520	330	86.2	1238
148	,, ,,	30	192	160	136	568	365	83.3	1540
149	,, ,,	58	190	138	126	530	359	72.6	1302
150	,, ,,	68	196	160	130	553	350	81.6	1511
151	,, ,,	70	189	165	127	540	323	87.3	1484
152	,, ,,	23	200	147	134	573	363	73.5	1471
153	,, ,,	28	179	134	127	528	320	74.9	1213
154	Shopbreaking	40	188	150	122	545	334	79.8	1326
155	Housebreaking	25	182	153	134	553	370	84.1	1412
156	,,	27	192	140	131	557	340	72.9	1350
157	,,	59	196	149	130	569	349	76.0	1551
158	Shopbreaking	63	178	150	136	542	362	84.3	1383
159	Housebreaking	23	178	154	132	542	360	86.5	1379
160	,,	56	196	157	134	553	530	80.1	1525
161	,,	24	197	149	131	564	350	75.6	1444
162	,,	33	190	148	126	540	338	77.9	1356
163	Shopbreaking	22	191	146	132	550	355	76.4	1396
164	Housebreaking	36	195	154	136	558	362	79.0	1514
165	,,	50	196	153	140	568	372	78.1	1548
166	,,	24	187	150	125	553	350	80.2	1345
167	,,	29	198	160	130	562	360	80.8	1523
168	,,	36	187	148	130	560	362	79.1	1372
169	Shopbreaking	25	198	152	134	535	345	76.8	1498
170	Housebreaking	22	193	146	133	557	365	75.6	1416
171	,,	26	197	161	130	567	355	81.7	1524
172	Shopbreaking	32	197	160	140	578	372	81.2	1610

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
173	Housebreaking	30	190	160	130	564	364	84.2	1475
174	Shopbreaking	39	185	146	126	533	342	78.9	1317
175	Housebreaking	38	184	146	128	533	350	79.3	1326
176	Shopbreaking	45	199	153	132	560	357	76.9	1407
177	Housebreaking	32	198	160	128	550	356	80.8	1504
178	Shopbreaking	56	188	148	130	530	325	78.7	1373
179	Housebreaking	32	197	145	132	568	370	73.6	1430
180	Horse-stealing	25	182	143	126	540	350	78.6	1280
181	,,	32	197	145	132	568	370	73.6	1430
182	,,	32	183	168	133	565	380	91.8	1516
183	Sheep-stealing	30	186	144	125	529	325	77.4	1300
184	Horse-stealing	26	195	146	134	562	348	74.9	1435
185	Sheep-stealing	40	186	144	125	540	362	77.4	1300
186	Inebriety	44	200	147	119	574	372	73.5	1341
187	,,	51	178	144	116	520	330	80.9	1191
188	,,	72	190	147	125	550	359	77.4	1341
189	,,	30	190	149	125	550	345	78.4	1335
190	,,	43	187	146	122	556	361	78.1	1207
191	,,	45	190	140	126	534	340	73.7	1300
192	,,	27	195	145	131	556	365	74.4	1403
193	,,	43	190	150	130	545	361	78.9	1403
194	,,	65	190	143	128	545	345	75.3	1337
195	,,	63	185	150	131	549	363	81.1	1384
196	,,	49	187	159	132	572	370	85.0	1468
197	,,	64	180	146	126	526	340	81.1	1290
198	,,	72	206	149	131	564	350	72.3	1494
199	,,	46	190	150	133	543	355	78.9	1428
200	,,	34	200	157	136	584	370	78.5	1568
201	,,	40	170	155	124	540	348	91.2	1277
202	,,	63	189	153	133	550	360	81.0	1445
203	,,	66	185	156	128	540	353	84.3	1400
204	,,	60	195	159	141	565	380	81.5	1599
205	,,	52	203	156	140	574	382	76.8	1616
206	,,	28	203	160	140	578	370	78.8	1649
207	,,	49	190	146	126	545	350	76.8	1342
208	,,	29	190	152	130	545	355	80.0	1418
209	,,	51	197	162	140	600	365	82.2	1626
210	,,	48	188	152	132	544	340	80.9	1463
211	,,	51	198	165	137	600	370	83.3	1657
212	Larceny	42	188	142	124	530	325	75.5	1288
213	,,	24	195	148	135	570	368	75.9	1459
214	,,	64	190	140	130	550	350	73.7	1322
215	,,	38	187	143	121	549	345	76.5	1267
216	,,	26	187	146	125	552	360	78.1	1318
217	,,	51	180	146	130	543	370	81.1	1320
218	,,	40	184	152	133	545	367	82.6	1408
219	,,	33	188	149	133	535	357	79 3	1410
220	,,	39	202	155	126	590	365	76.7	1471

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
221	Larceny	29	189	150	122	552	358	79.4	1331
222	,,	23	192	149	134	547	365	77.6	1441
223	,,	27	198	157	129	570	359	79.3	1491
224	,,	38	188	152	120	545	340	80.9	1322
225	,,	36	190	144	125	544	340	75.8	1320
226	,,	54	198	142	130	558	362	71.7	1388
227	,,	22	196	145	135	564	362	74.0	1441
228	,,	22	194	149	140	550	390	76.8	1503
229	,,	37	192	142	130	565	360	74.0	1356
230	,,	36	184	150	125	538	343	81.5	1329
231	,,	42	192	147	129	550	345	76.6	1384
232	,,	24	190	142	139	547	345	74.7	1417
233	,,	66	190	138	134	535	330	72.6	1355
234	,,	33	179	149	134	523	350	83.2	1374
235	,,	25	190	148	132	545	325	77.9	1405
236	,,	38	188	145	128	545	360	77.1	1341
237	,,	23	191	156	136	557	360	81.7	1514
238	,,	23	188	141	125	545	345	75.0	1305
239	,,	45	191	151	126	565	355	79.1	1372
240	,,	47	200	154	134	565	370	77.0	1526
241	,,	31	186	154	129	553	360	82.8	1401
242	,,	33	198	153	135	568	380	77.3	1515
243	,,	50	198	159	132	550	360	80.3	1534
244	,,	28	196	146	136	554	370	74.5	1458
245	,,	30	195	158	143	560	352	81.0	1609
246	,,	28	203	145	130	555	376	71.4	1437
247	,,	23	189	154	141	550	360	81.5	1521
248	,,	30	194	144	132	550	350	74.2	1398
249	,,	24	195	157	128	543	350	80.5	1465
250	,,	28	192	146	134	554	360	76.0	1418
251	,,	21	187	151	140	540	350	80.7	1477
252	,,	24	177	156	132	542	360	88.1	1397
253	,,	29	194	149	143	568	378	76.8	1529
254	,,	25	192	150	134	560	380	78.1	1448
255	,,	41	192	159	126	552	360	82.8	1444
256	,,	53	192	146	132	555	350	76.0	1402
257	Robbery	35	186	147	137	525	345	79.0	1417
258	Larceny	57	196	152	130	570	370	77.6	1452
259	,,	24	195	147	143	570	390	75.4	1519
260	,,	30	195	150	135	562	350	76.9	1474
261	Robbery	27	192	152	127	557	355	79.2	1403
262	Larceny	23	192	163	132	570	370	84.9	1527
263	,,	22	189	148	130	542	342	78.3	1383
264	Robbery	21	180	135	132	524	353	75.0	1260
265	Larceny	50	183	159	136	575	365	86.9	1478
266	,,	61	175	148	125	581	366	84.6	1269
267	,,	25	189	160	130	555	368	84.7	1469
268	,,	28	194	144	136	538	362	74.2	1431

Serial Number.	Nature of Crime.	Age.	Length.	Breadth	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
269	Larceny	68	195	160	124	550	330	82.1	1450
270	,,	39	196	153	137	570	370	78.1	1521
271	,,	32	200	149	134	562	345	74.5	1487
272	,,	51	190	149	133	555	352	78.4	1421
273	,,	33	202	156	136	573	363	77.2	1572
274	,,	40	184	140	131	525	344	76.1	1308
275	,,	26	184	139	137	535	342	75.5	1346
276	,,	53	186	146	120	530	325	78.5	1273
277	,,	37	193	156	140	550	360	80.8	1553
278	,,	26	188	146	130	548	330	77.7	1364
279	,,	39	198	146	136	560	350	73.7	1469
280	,,	27	188	144	130	518	330	76.6	1350
281	,,	50	194	156	134	562	362	80.4	1505
282	Stealing	26	192	158	142	576	380	82.3	1580
283	Larceny	31	189	152	130	542	350	80.4	1412
284	,,	37	185	148	128	539	344	80.0	1345
285	,,	36	185	150	126	540	350	81.1	1343
286	,,	32	184	140	121	550	345	77.2	1246
287	,,	55	190	154	125	550	348	81.1	1389
288	,,	48	192	160	130	550	354	83.3	1487
289	,,	38	192	150	130	563	372	78.1	1414
290	,,	40	195	152	134	551	360	77.9	1481
291	,,	26	197	153	134	552	355	77.7	1500
292	,,	29	196	158	136	556	364	80.6	1551
293	,,	41	183	154	140	581	362	84.2	1475
294	,,	48	191	153	131	567	370	80.1	1439
295	Theft	63	196	158	130	570	349	80.6	1496
296	Larceny	65	199	154	138	545	350	77.4	1556
297	,,	50	194	150	127	547	342	77.3	1400
298	,,	38	186	152	129	520	345	81.7	1387
299	Robbery	42	200	161	140	584	340	80.5	1638
300	Larceny	35	188	146	133	535	350	77.7	1388
301	,,	28	182	150	130	552	342	82.4	1359
302	Theft	29	189	154	130	540	350	81.5	1426
303	,,	42	200	149	130	563	340	74.5	1451
304	Larceny	49	188	142	132	540	360	75.5	1351
305	Stealing	40	188	160	133	560	355	85.1	1490
306	Larceny	28	200	157	130	570	358	78.5	1512
307	Stealing	35	182	144	123	523	324	79.1	1295
308	Larceny	40	192	152	138	560	362	79.2	1498
309	,,	31	187	152	137	540	355	81.3	1459
310	,,	50	206	162	142	580	370	78.6	1705
311	Robbery	23	189	150	142	540	365	79.4	1498
312	Larceny	35	194	151	141	547	346	77.8	1528
313	,,	38	192	157	131	564	262	81.8	1474
314	,,	32	200	156	138	574	364	78.0	1578
315	,,	26	185	146	130	545	360	78.9	1348
316	,,	27	191	142	132	531	340	74.3	1367

Serial Number.	Nature of Crime.	Age.	Length.	Breadth.	Height.	Circumference.	Transverse Arc.	Cephalic Index.	Capacity.
317	Larceny	60	192	152	125	558	335	79.2	1386
318	,,	58	200	149	137	578	362	74.5	1513
319	,,	33	184	149	128	537	345	81.0	1347
320	Robbery	34	184	150	134	561	371	81.5	1405
321	,,	48	186	160	132	545	352	86.0	1469
322	,,	35	186	152	136	525	345	81.7	1445
323	Larceny	27	197	148	140	555	345	75.1	1513
324	,,	36	194	156	140	560	360	80.4	1559
325	,,	29	190	136	130	570	367	71.6	1303
326	,,	30	176	138	126	548	346	78.4	1203
327	Theft	41	183	139	128	561	350	76.0	1274
328	Larceny	66	189	145	134	560	360	76.7	1394
329	,,	28	180	155	128	549	352	86.1	1365
330	,,	33	197	170	148	571	368	86.2	1771
331	Robbery	26	186	152	128	544	344	81.7	1378
332	Larceny	52	193	153	126	540	335	79.3	1407
333	,,	27	190	150	140	545	354	78.9	1487
334	Robbery	45	194	160	134	570	360	82.5	1536
335	Larceny	46	195	154	140	562	362	79.0	1549
336	Robbery	26	196	160	136	566	365	81.6	1567
337	Larceny	29	189	143	130	550	349	75.7	1348
338	,,	57	195	149	137	562	360	76.4	1484
339	,,	45	189	157	130	548	345	83.1	1448
340	,,	39	205	160	150	574	380	78.0	1750
341	,,	65	170	132	128	512	345	77.6	1164
342	,,	49	195	150	133	545	342	76.9	1474
343	,,	46	194	161	135	562	362	83.0	1553
344	,,	55	190	154	122	550	348	81.1	1350
345	,,	26	197	150	128	548	349	76.1	1425
346	Theft	29	185	154	143	548	330	83.2	1511
347	Larceny	48	195	146	140	538	360	74.9	1485
348	Robbery	27	181	138	126	536	334	76.2	1242
349	Larceny	51	196	149	136	569	362	76.0	1481
350	,,	21	184	146	124	532	350	79.3	1295
351	,,	29	190	144	130	548	330	75.8	1360
352	,,	25	182	153	134	553	370	84.1	1412
353	Robbery	26	189	150	130	548	361	79.4	1398
354	,,	38	195	153	132	570	362	78.5	1471
355	,,	26	190	154	135	555	368	81.1	1475